CLAIMS

What is claimed is:

1. A touch screen display for a personal information device, comprising:

an optical touch sensor;

a display; and

a single piece cover containing the optical touch sensor, the single piece cover having a transparent surface for viewing the display disposed beneath the transparent surface, the single piece cover including a lens structure for columnating light across the transparent surface, the optical touch sensor coupled to the lens structure to register contact with the transparent surface via the lens structure while the single piece cover prevents contaminants from entering the personal information device.

2. The touchscreen display of claim 1 wherein the single piece cover includes in mold decoration along a periphery of the single piece cover.

3. The touchscreen display of claim 1 wherein the lens structure included within single piece cover is coupled to the optical touch sensor to provide columnated light for detecting and registering contact with the transparent surface.

4. The touchscreen display of claim 3 wherein a plurality of waveguides are coupled to the lens structure and embedded within the single piece cover.

5. The touchscreen display of claim 1 wherein the optical touch sensor detects and registers contact from a finger on the transparent surface.

6. The touchscreen display of claim 1 wherein the optical touch sensor detects and registers contact from a stylus on the transparent surface.

7. The touch screen display of claim 1 wherein the single piece cover comprises a mylar polycarbonate material.

8. The touch screen display of Claim 1 wherein the single piece cover is bezel-less.

9. The touchscreen display of claim 1 wherein the transparent surface transmits more than 90 percent of light impinging upon the transparent surface to the display.

10. An integrated enclosure/touch screen assembly comprising:

a display mechanism;

an optical sensor;

a lens structure coupled to the optical sensor;

a single piece cover enclosure that is bezel-less; and

a supporting structure for supporting the display mechanism, the optical sensor, the lens structure, and the single piece cover enclosure, wherein the lens structure and the single piece cover enclosure form a single mechanical structure and wherein the optical sensor can be activated by touching the external surface of the single piece cover enclosure to disturb light received by the lens structure.

11. The integrated enclosure/touch screen assembly according of Claim 10 wherein the single piece cover enclosure includes a transparent surface and the display mechanism is disposed beneath the transparent surface.

12. The integrated enclosure/touch screen assembly according of Claim 10 wherein finger contact on the transparent surface of the single piece cover enclosure may be used to activate the optical sensor via the lens structure.

13. The integrated enclosure/touch screen assembly according of Claim 10 wherein stylus contact on the transparent surface of the single piece cover enclosure may be used to activate the optical sensor via the lens structure.

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14. The integrated enclosure/touch screen assembly according of Claim 10 wherein the single piece cover enclosure includes a periphery area for in-mold decoration.

15. The integrated enclosure/touch screen assembly according of Claim 10 wherein the optical lens structure is disposed along a periphery of the transparent surface of the single piece cover enclosure.

16. A display assembly for a portable electronic device comprising:

a flat panel display screen;

an optical sensor;

a lens structure coupled to the optical sensor;

a bezel-less transparent surface wherein the lens structure is coupled to the transparent surface to form a single mechanical structure and wherein

contact with the transparent surface is detected by the optical sensor detecting a shadow from the contact via the lens structure.

17. The display assembly from claim 16 wherein a wave guide structure couples the lens structure to the optical sensor.

18. The display assembly from claim 16 wherein the transparent surface is a single layer transparent surface configured to transmit more than 90 percent of light impinging upon the transparent surface to the display screen.

19. The display assembly from claim 16 wherein the bezel-less transparent surface includes a peripheral area for in-mold decoration.

20. The display assembly from claim 16 wherein the lens structure is embedded within the transparent surface of the display assembly.